

Editorial

Materials science was born out of Metallurgy in the nineteensixties of the last century. Pioneer metallurgist was William Hume-Rothery (1899–1968) who studied the alloying of metals. His research was conducted at Oxford University where in 1958, he was appointed to the first chair in metallurgy. He established that the structure of an alloy depends on the sizes of the component atoms, as well as the valency electron concentration, and electrochemical differences. The considerations of dependence of materials and alloys on their microstructure were further developed by Alan Cottrell in Birmingham and later at the Atomic Energy Research Establishment at Harwell and at Cambridge University. David Brandon in the lead article of this issue was a Ph.D. student in Cambridge when Alan Cottrell took over as head of metallurgy in 1958. Solid State Physics pioneered by Fred Seitz at the University of Illinois, later taken up by John Bardeen with the production of the first transistor by zone refining at Bell Labs at about that time paved the way for Materials Science as a major discipline. The first group of non-metallurgists to enrol as graduate students in the metallurgy department at Cambridge were Mike Southon and myself both coming in as physics graduates. We were a group of 4 and settled on the ground floor of the metallurgy department next to the Cavendish working on field ion and electron microscopy. David Brandon was the leader of the group and was responsible for promoting and encouraging what at the time was pioneering work on the microstructure of metals and the structure of dislocations and grain boundaries. Materials Science has since taken off as an area that can be considered as one of the most interdisciplinary in all of science and engineering. This is evidenced by the breadth and scope of the papers submitted for the special section in this issue. From viscoelasticity, to strength of chocolate to design and the application of new instruction and virtual methodologies. It is all there. Caroline Baillie and Linda Vanasupa have succeeded in selecting a wide spectrum of contributions as is befitting for a rainbow spectrum of a subject such as materials science has become. I am grateful to the guest editors for submitting these fascinating papers for the special issue.

Part II of this issue also has a variety of contributions ranging from East West experiences of engineering education in Taiwan to an emerging discipline of sports engineering. We note the source countries of the papers. In particular, two papers originating from Norway as well as two papers from Spain. We observe that Spain in particular is fast developing into a major contributing source for papers related to engineering education, far outstripping contributions from traditional strong engineering countries such as Germany and France.

Enjoy the issue.

Michael Wald